Algorithmically Generated Information Vacuum: Short-Form Video Personalization, Perceived Relevance and Critical Thinking Among Young Media Users

Aleksandra Spasevska, MA
"Kuzman Josifoski-Pitu" Primary School, 4-ti Juli bb, Kičevo
E-mail: aleksandra.spasevska94@gmail.com

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Abstract

This paper explores the idea of an algorithmically generated information vacuum among young users of digital media. Young people today have access to many sources of information. Still, the content they see every day is often shaped by their interests, searches, viewing habits and interactions. Because of this, students may mainly see topics that already attract them. Other current, cultural and socially important topics may remain outside their attention. The paper combines theoretical analysis with a questionnaire-based study among students. Its aim is to examine the relation between information visibility, perceived relevance, attention and critical thinking. The questionnaire focuses on four areas. The first area examines students' media habits and the type of content they most often see on short-form video platforms, such as TikTok, Instagram Reels and YouTube Shorts. The second area examines students' awareness of general, cultural and current topics. The third area focuses on the possible influence of short-form content on attention, interpretation and the ability to follow longer and more complex content. The fourth area focuses on critical thinking, especially the ability to distinguish between popular and important content, to check information, and to reflect on the role of algorithms in shaping their everyday information space. The paper argues that critical thinking in digital environments is not only about checking information that appears in front of us. It is also about noticing what remains unseen, unsearched and excluded from one's everyday digital environment. For this reason, media literacy today should include algorithmic literacy and a stronger focus on the hidden limits of personalized digital content.

Keywords: algorithmic personalization; information vacuum; short-form videos; perceived relevance; critical thinking

1. Introduction: The Paradox of Information Abundance

What happens to people when they find themselves facing the paradox of ultimate freedom? When countless possibilities open up before them, instead of a sense of complete freedom and a desire to make a better choice, the questions suddenly arise: “And now what?” and “And now where?”. From this comes the realization that unlimited choice does not imply an ability to decide easily. On the contrary, the power to decide may diminish as the possibilities for choice increase.

A similar paradox arises in the contemporary information world, in which people have access to more information than ever before. Yet it is precisely this abundance that confronts them with a new dilemma: which information to choose, which to pay attention to and which to explore in greater depth.

The scale of information abundance is vividly illustrated by Bawden and Robinson (2009, p. 185), who note that a single weekly edition of *The New York Times* contains more information than an average person in seventeenth-century England was likely to come across in a lifetime. This comparison highlights the historical shift from limited access to information towards its ever-greater availability. In addition, McLuhan’s concept of the “global village” (McLuhan, 1962), as an unimaginable possibility of connectedness between people and rapid exchange of data, takes on a new form with the development of the internet and digital platforms. However, as the possibilities for obtaining information expand, the very process of choosing may become more complicated. Perhaps one of the explanations for the increasingly widespread use of algorithmic content recommendation systems lies precisely in the need for easier orientation amid information abundance. In addition to being able to search independently, users are also exposed to algorithmically selected content, which is recommended by taking into account, among other things, their interests, previous searches and digital interactions.

Thus, a new paradox emerges: in a world in which information is almost unlimitedly available, users may once again find themselves in a limited information space. Unlike in the past, this limitation does not necessarily stem from the unavailability of information, but from its selective visibility. It is precisely in this contradiction that the question of the algorithmically generated information vacuum arises.

This is also the starting point of this research. Young people were chosen as the target group because of the author’s professional need, as a teacher, to better understand their information environment and to use the insights gained to modernize teaching practice. However, this does not mean that the algorithmically generated information vacuum is specific to young people. On the contrary, adults may also face similar limitations of information visibility without necessarily being aware of them.

In this vein, the research examines the phenomenon of the algorithmically generated information vacuum through the personalization of short-form video content on TikTok, Instagram Reels and YouTube Shorts. The central research question is how students’ individual interests and digital habits can influence algorithmic selection, and how this, in turn, influences the visibility and perceived relevance of information. Particular attention is paid to the connection between the content to which young people are exposed, their awareness of socially and culturally significant topics, attention and critical evaluation. In this context, the question also arises of a possible information-cultural dissonance in the transition from the personally appealing digital space to unfamiliar or less appealing educational and social content. In doing so, the paper re-examines how information abundance can coexist with limited information visibility.

To achieve this aim, the paper applies a theoretical-analytical approach, complemented by an anonymous survey conducted among young respondents of different age groups. The sample was formed on the basis of the voluntary participation of the author's current and former students. The questionnaire covers four thematic areas, which examine habits of platform use, awareness of certain topics, attention when following and processing content, and certain aspects of critical thinking. The results obtained are not treated as a separate case study, but as an additional empirical basis for supporting, re-examining and deepening the theoretical propositions of the paper. Given the methodological limitations, their interpretation is aimed at identifying possible connections, without assuming cause-and-effect relationships or generalizing the findings to the wider youth population.

Hence, the essential question is not only how much information is available to young people, but which of it becomes visible, which of it is perceived as important, and how this selectivity relates to their critical thinking.

2. Algorithmic Personalization and Digital Habits: Who Chooses the Next "Scroll"?

The world we live in is constantly changing, sometimes at a speed that can easily turn even events that happened yesterday into something resembling screen memories. Our eyes simply cannot see everything that exists and takes place around us. It is no coincidence that speculative interpretations of reality also invoke the Mandela effect, even though it refers to shared false memories rather than to an actual change in reality. To this effect we can add the metaphor that emerges from the film *The Matrix*: how aware are we of the mechanisms that mediate our perception of the world? Both parallels lead us to a common dilemma: do we see what is important for us to see, what we ourselves want to see, or what someone else decides to show us?

2.1. Digital Habits and Recommendation Mechanisms

Major technological changes sometimes overshadow changes in everyday habits. The EU Kids Online 2020 survey, conducted among 25,101 children from 19 European countries, shows an increase in smartphone use and in time spent online compared with 2010, with children stating that their phones are with them almost "all the time" (Smahel et al., 2020, p. 6). The popularity of platforms is also changing: among American adolescents, Facebook use fell from 71% in 2014–2015 to 31% in 2025, while YouTube, TikTok and Instagram are among the most widely used platforms, and X is used by 16% (Faverio and Sidoti, 2025). This ratio also raises a question: in the battle for young people's attention, is text becoming less and less appealing than dynamic video content? Although these findings do not relate directly to young people in Macedonia, they illustrate how changeable digital practices are.

A similar picture of the significant presence of short-form video content can also be seen in the survey conducted for the purposes of this paper. **67.6% of respondents** named **TikTok** as the platform on which they most often watch short-form video content, while **35.2%** stated that they devote more than three hours a day to such content. This answer was given by **29.2% of respondents aged 11 to 14.** Such daily exposure raises the question of whether fast, dynamic and visually rich content is gradually also shaping users' expectations of the way we receive information. Perhaps this is where part of the explanation lies for the lower popularity among young people of platforms traditionally known for text-based posts, such as X. After all, Facebook itself is adapting to these tendencies: in 2022, it expanded Reels globally,

with Meta announcing that video accounts for half of the time spent on Facebook and Instagram (Meta, 2022).

However, time spent on platforms does not in itself reveal what kind of information young people encounter. The responses to the survey (Appendix 1) point to a dominant presence of music, humor, influencers and entertainment content. Nevertheless, the examples given also include current events, scientific information and educational topics. Hence, the personalized information space need not be monotonous, but its thematic diversity does not mean that all content receives equal visibility.

It is therefore first necessary to understand how this information space is shaped by the system called an algorithm. In its basic sense, an algorithm is a sequence of rules or procedures for performing a particular task. However, contemporary algorithmic recommendation systems are more complex than that. They use data and models to estimate which content is most likely to interest the user, and then select and rank it for display according to its estimated relevance.

On **TikTok**, the **For You** algorithm recommends content on the basis of user interactions, watch time and video characteristics, including hashtags. **Instagram Reels**, in addition to previous interactions, also takes social influence into account, so that content can become visible through the activities and reposts of other users. **YouTube Shorts**, for its part, shapes its recommendations according to the user's viewing history, searches and reactions, including skipping videos.

The availability of information does not imply its visibility: a particular topic may be present on the internet and yet remain outside the personalized feed of content that the user follows every day.

2.2. Between Genuine and Algorithmically Estimated Interests

Among other things, algorithmic systems have an essential limitation: they register user behavior, but they cannot reliably recognize the real reasons behind it. Watching a video to the end does not necessarily indicate interest; it may also be the result of curiosity, surprise or disagreement. In addition, on TikTok a video can automatically repeat in a loop while the user is doing something else and is not paying attention to it. Likewise, a single video may contain a dozen hashtags related to different topics, even though the user's attention was focused on only one of them. Hence, the interest that the algorithm attributes to the user need not coincide with their genuine interest. Thorson et al. (2021) found that users to whom Facebook, on the basis of their digital activities, attributed an interest in news and politics reported more frequent exposure to such content, even when the interest they themselves reported was taken into account in the analysis.

Hence, it would be wrong to present the algorithm as solely responsible for limiting information visibility. Users' digital profiles are also shaped by their own choices: whom they follow, what they search for, what they skip and which content they decide to explore. The study by Bakshy, Messing and Adamic (2015) shows that, in addition to algorithmic ranking, personal choices can play a significant role in limiting exposure to politically diverse viewpoints. The information space is thus created through the interplay of the user, the platform and the wider social environment.

But does interest always precede what we watch, or does what is constantly shown to us sometimes begin to shape our focus? With this question, the algorithm ceases to be merely a mechanism that recognizes the user's wishes and becomes a possible director of attention. In an analysis of more than 1.7 million YouTube recommendations from 2019, Huang and Yang (2024) found that entertainment content was recommended more often than

news, with algorithmic recommendations more often leading from news to entertainment content than the other way round. At the same time, personalized recommendations can introduce users to topics in which they had not previously shown interest, so their influence need not be exclusively restrictive. This finding does not prove that the algorithm changes people's genuine interests, but it does indicate that it can influence which content gets the chance to attract our attention. Hence, perhaps the question is not only what we want to see, but also what gets the chance to interest us at all.

2.3. From Searching to the Postponed Search for Information

The change concerns not only the content shown to users, but also the way in which they arrive at an answer. A question prompted by a video may lead to searching several websites and comparing sources, but it may also be followed up through comments, related searches and other short videos, without leaving the platform. The study by Diep and Tran (2025) shows that the TikTok users surveyed often rely on the comments and on elements of the video itself when evaluating information, even though they rate the platform as less useful for searching than traditional search engines. This does not prove that independent research is disappearing, but rather that there are now different paths to information.

What becomes significant here is not only how users arrive at information, but also when they decide that they have learned enough. The concept of *information satisficing* describes behavior in which users do not seek to explore all available sources, but settle for information they consider sufficient for their immediate purpose. Examining the information habits of students, Warwick et al. (2009) observe that the respondents sought to complete their tasks with as little information effort as possible. Hence, ending the search does not necessarily mean that the topic has been fully explored, but rather that the user has reached their own threshold of sufficiency.

On the other hand, *information foraging* theory (Pirolli and Card, 1999) views information seeking as a process of assessing the expected benefit of information in relation to the time and effort needed to find it. Users are guided by cues indicating where they might find useful information and constantly decide whether to continue with the current source or move on to another that seems more promising. According to this theory, information behavior involves not only finding content, but also constantly choosing between different possibilities for continuing the search.

What happens when new possibilities do not arise from conscious searching, but constantly appear in front of the user? In the space of short-form video content, a search that has already begun may be interrupted not because the user has learned enough, nor because they have lost interest, but because their attention has been drawn to other content. Something even more interesting may be hiding in the next scroll. Thus, interest in the initial topic may remain, while its deeper exploration is constantly postponed. Hence, the limited scope of information need not stem only from a lack of interest or from consciously settling for superficial knowledge. Perhaps the problem also lies in the fact that, surrounded by an uninterrupted influx of new content, users never return to the search they started.

Consequently, the question "Who chooses the next scroll?" has no simple answer. Through their habits, users take part in shaping recommendations, algorithmic systems estimate their interests, and social connections and platform rules further influence the selection. Certain overlaps can be observed in the survey responses: for example, among respondents aged 16, the Victoria's Secret fashion show recurs as content that had recently appeared to them (Appendix 1). This may point to the role of algorithmic recommendations, but also to the popularity

of the event itself. Distinguishing between these causes would require more detailed qualitative research, including monitoring of the personalized (For You) pages. The question therefore remains: who chooses the information that gets the chance to become visible?

3. Information Visibility and Perceived Relevance: What Remains Outside the "Aquarium"

The difference between the **availability** and the **visibility** of information can be represented metaphorically through two fish living in different conditions. The first lives in an aquarium, where there is food and the conditions for life, but its world is bounded by glass walls. It knows the space in which it moves. The second fish lives in the open sea, where, although it does not know the entire space, it has the opportunity to explore and discover unknown areas. The sea represents the internet, and the aquarium represents the personalized information space of social platforms. Users may be surrounded every day by a great deal of content shaped according to their interests and habits, while other information, although available, remains outside their attention. Unlike the fish in the aquarium, users have the opportunity to overcome these boundaries by searching independently and exploring different sources. However, relying mainly on the content on offer may keep them in a thematically limited space—a kind of **information vacuum**.

3.1. Perceived Relevance and Forms of the Information Vacuum

What is interesting, what is personally relevant and what is socially significant need not coincide, especially among students, whose interests and information competences are still developing. Tamboer, Kleemans and Daalmans (2022) show that young people may recognize the importance of news and yet experience it as boring or remote from their own lives. In the survey conducted as part of this research, 83.82% of respondents stated that they had heard of Dinev Snacks, compared with 41.18% who had heard of the withdrawal of textbooks. Among respondents aged 11 to 17 who had heard of the withdrawal of textbooks, 40% first learned about it from their family or at school, and 20% from social media. Although these data do not explain why the topics differ in how widely they are recognized, they highlight the role of the immediate environment as a source of information outside the platforms. Hence, school and family play an important role in broadening young people's information space. When timely information on topics that concern them is lacking, the information vacuum may also be accompanied by a feeling of being excluded from conversations in one's immediate environment—as if the glass walls of the "aquarium" extended beyond the screen.

Being unfamiliar with a particular topic does not necessarily mean being uninterested in it. In the survey conducted, 70.59% of the respondents who stated that video game content appears to them had heard of GTA VI, compared with 45.10% of those who did not mention this category. A similar difference can be observed for the withdrawal of textbooks: 52.38% of the respondents who stated that educational content appears to them had heard of this topic, compared with 36.17% of the others. These data indicate that interest in a particular area may be associated with greater recognition of related topics, but does not guarantee it. The news about the withdrawal of textbooks was also available through text posts on news portals, but for users who get their information mainly from short videos on TikTok, it may remain

outside their usual information space. Hence, relying on a single platform for information may contribute to the creation of an information vacuum, even when the user shows interest in the specific area. However, the survey does not establish whether, and why, a particular piece of content failed to appear in the respondents' personalized feeds.

Within this conception, **two basic forms of the information vacuum** can be distinguished. The first concerns a topic whose very existence the user is unaware of. The second concerns an already familiar topic whose further development ceases to be part of the user's usual intake of information through social platforms. Particularly significant is the case in which interest in the topic persists, but the topic no longer appears in the user's personalized feed. In such circumstances, prior knowledge need not disappear, but may remain at the level already reached, while the topic itself continues to develop. The study by Primig, Szabó and Lacasa (2023) on content related to the war in Ukraine on TikTok can serve as an illustration. The authors noted that, after an initial period of intense presence, content about the war disappeared from their personalized "For You" feeds, which made their further research more difficult. Although the reasons for this change were not established, the example shows that interest in a particular topic does not guarantee continuous exposure to information about its development. At the same time, limited visibility on the platform does not imply a complete lack of information, since users may acquire knowledge through other sources.

3.2. Information-Cultural Dissonance and the Comfort of Personalization

In the fast pace of everyday life, when information is plentiful and the time available to explore it is limited, the desire to be more broadly informed may clash with the comfort of the familiar digital space. Leaving one's own "aquarium" means encountering unfamiliar topics, different perspectives and information that is not necessarily personally appealing, which may cause unease and a sense of mismatch. In this paper, this possibility is examined through the concept of information-cultural dissonance. In the first part of the survey, among respondents aged 11 to 17, 82.50% stated that music content appears to them, while 20% mentioned current events. In the specific examples given in response to question 7, music and concerts are represented in 50% of the responses, while news and general events are represented in 12.50%. In the second part, however, 67.50% of the same age group stated that they had heard of the protests by secondary school students in France, and 40% of the NASA and 5G topic. Such differences do not prove that dissonance exists, but they raise the question of how users experience encounters with topics outside their usual information space.

It is precisely in such a mismatch that a need for relief may arise. Instead of constantly choosing, searching and assessing which information deserves attention, users may settle for the content that the platform already offers them. This phenomenon can be considered by analogy through the philosophical perspective of Erich Fromm (1941), who, in *Escape from Freedom*, problematizes the burden of independent decision-making and the tendency to seek support in an external authority. Although his analysis does not concern digital technologies, it raises the question of whether leaving information choices to algorithmic systems also represents a kind of release from the effort of informing oneself independently. Thus, the comfort of the personalized space may simultaneously make everyday life easier and reduce the need to leave it.

The information vacuum, therefore, does not imply an absence of information, but the limited visibility of certain topics in the personalized information space. Although users have the opportunity to overcome its boundaries, relying on the content immediately on offer may keep them in the familiar "aquarium", while part of the wider information world remains outside their attention.

4. Attention, Understanding and Critical Thinking: What Remains after the Next "Scroll"?

Research on conditioning shows that, through repetition, we can learn to expect a certain outcome after a certain signal (Pavlov, 1927). With a single "scroll" comes new content—and perhaps a new reward. But how much of the information we take in within just twenty or so seconds do we actually manage to understand and remember? And do we find the reward in the knowledge gained, or only in the excitement of the next piece of content? Through the concept of lateral thinking, Edward de Bono (1970) emphasizes the importance of stepping outside habitual patterns of thought and seeing a problem from a different perspective. But how often do we give ourselves the chance to think differently about what we have seen before moving on to the next "scroll"?

4.1. Attention after the "Next Scroll": From Digital Absorption to Cognitive Redirection

The rapid move from one short video to another raises the question of what happens to attention when the user needs to redirect it to a different activity. Interesting insights into this are offered by the study by Luo et al. (2025). In this study, the participants were divided into three groups: for half an hour, the first group watched short videos similar to those on TikTok, the second watched a documentary film, and the third did not watch any video content. All participants then solved number tasks in which they had to determine, alternately, whether a number was odd or even and whether it was greater or less than five. In this way, the researchers examined how successfully participants adapted when switching from one rule to another. It turned out that those who had watched the documentary or had not watched any videos made better use of the additional preparation time before the task changed, whereas no such improvement was observed in the group that had watched short videos. The results of the experiment raise the question of whether the transition from short videos to reading a longer text or solving a more complex task may require additional mental effort.

An additional perspective is offered by the study by Tam and Inzlicht (2024), which shows that frequently switching between digital content, although it may seem to be a way of avoiding boredom, can under certain conditions increase it even further. But what happens when, after a series of short, dynamic and engaging videos, a student needs to read a longer text on an unfamiliar topic? It is precisely in this kind of transition that information-cultural dissonance can be considered—a concept used in this paper to describe the possible mismatch between the information world the user is accustomed to and the content they encounter outside it. This is not only a matter of redirecting attention, but also of the difference between what is familiar and appealing to the user in the digital space and what requires additional effort to be understood. Such a mismatch may cause boredom or resistance, but it may also spark curiosity and new interest.

In this context, the results of the survey show that 57.35% of respondents expressed strong agreement with the statement that, when watching longer videos, they often skip parts in order to get more quickly to the information that interests them. Such behavior does not necessarily indicate a reduced ability to sustain attention; it may stem from interest in a specific piece of information, limited time or a judgment that certain parts are not relevant enough. However, when users are constantly confronted with new information and must repeatedly

decide where to direct their attention, the very process of choosing may become an additional burden. This constant need to choose and evaluate information leads us to yet another phenomenon—information fatigue.

But is it only the quantity of information that tires us, or also the feeling that we are constantly seeing something similar? In a study of 425 adult social media users, Yao et al. (2026) found a link between information overload, the feeling that the content on offer is limited, and information fatigue. Users may browse a large number of posts every day and yet have the impression that they keep encountering the same topics and similar viewpoints. Thus, it is possible to be simultaneously overwhelmed with information and enclosed in a narrow information space.

The insights considered bring us back to the initial thesis about the information vacuum, but now from a different perspective. Interests, habits and the selection of information are not only possible limitations, but also an integral part of the way we find our way in digital abundance. Therefore, perhaps the real problem is not that we choose what to watch, but how much room we leave for what we would not choose ourselves. It is precisely here that the question of attention gradually turns into a question of understanding.

4.2. From Information Visibility to Understanding: Between Superficial Browsing and In-Depth Processing

Information visibility in itself does not imply an understanding of what we see. The study by Nanz et al. (2026) examines the difference between superficially scanning the news and processing it in depth, pointing to the importance of relevance appraisal for the way users approach information. It is one thing to notice a news item, and quite another to dwell on it, understand it and connect it with what we already know. With this difference, we enter the essence of the information vacuum: do we merely recognize information, do we truly understand it, are we able to apply the knowledge gained and, finally, are we capable of critically re-examining it?

We also examine the difference between recognizing information and understanding it through the third part of the survey. The respondents read a short text about waste sorting in a school and then answered three questions with different requirements: recognizing a piece of data, interpreting a situation and drawing a conclusion. The last two questions are of particular interest for our research. As many as 76.47% of respondents recognized that simply putting bins in place was not enough to solve the problem, while 83.82% concluded that information and active involvement can contribute to changing behavior. These results point us to an important distinction: it is not enough simply to know what happened; we need to be able to think about why it happened and what could be done differently.

Hence, the question of understanding once again directs attention to the habits formed through the everyday following of short-form video content. When interesting information is constantly available with a single movement of the finger, the assumption arises that this way of getting information gradually and almost imperceptibly shapes users' expectations outside the digital space as well. Becoming accustomed to short, easily understandable and instantly appealing content may reduce the willingness to devote time and mental effort to information that requires deeper understanding and independent research. In this sense, the information vacuum is considered not only as the result of algorithmically limited visibility, but also as a possible consequence of the information habits that users develop while following recommended content. According to this assumption, it is precisely these gradual and often unconscious changes that may also affect the willingness to re-examine information critically.

4.3. Critical Thinking: Between the Information We See and Certainty in What We Know

Critical thinking in the digital space involves not only checking the truthfulness of information, but also re-examining one's own knowledge. Particularly interesting in this context is the study by Bahg, Sloutsky and Turner (2025), who, in an experiment involving the learning of artificial categories, showed that a personalized information environment can lead to the formation of inaccurate representations, but also to excessive confidence in them. In short, users may have limited information at their disposal and yet be convinced that they know enough about a particular topic. Thus, the problem lies not only in what remains outside their information space, but also in the certainty with which they accept what lies within it.

The repetition of information poses an additional problem. Pennycook, Cannon and Rand (2018) show that prior exposure to fake news headlines can, under certain conditions, increase the likelihood that those headlines will later be judged to be true. This phenomenon is known as the illusory truth effect. In other words, information may seem more credible not because we have checked it, but because we have already encountered it. Familiarity can gradually create an impression of certainty, even without sufficient grounds.

It is precisely the difference between knowledge and its application that we examine through two situational questions in our survey. When respondents had to explain why similar opinions keep appearing to them on social media, 70.59% recognized the influence of previous interactions on algorithmic recommendations. However, when faced with a popular video containing the unverified claim that there would be no classes the next day, only 47.06% chose to check it through an official or other credible source. These results indicate that recognizing algorithmic mechanisms and choosing to critically check a specific piece of information do not always go hand in hand. It is one thing to know that content is personalized, and another to apply that knowledge at the moment when we have to decide what to believe.

Hence, the information vacuum is not limited to what remains invisible or insufficiently understood. It can also concern the knowledge we accept with certainty without re-examining it sufficiently. The paper puts forward the assumption that the habits formed around easily accessible and personalized content may gradually shape the willingness to engage in such re-examination as well. In this sense, perhaps the real danger of the information vacuum is not only ignorance, but also the failure to recognize it.

5. Conclusion: Beyond the Glass

The study of the algorithmically generated information vacuum has led to insights that go beyond the questions initially posed. In addition to the limited visibility of information, it has also raised the question of how information habits are gradually shaped and how they may be connected with attention and understanding, as well as with confidence in one's own knowledge. Hence, the information vacuum does not stem solely from algorithmic selection, but can also be sustained by the habits formed in the personalized digital space.

The initial motivation for this paper was the need to better understand the information world of students as a basis for modernizing teaching practice. The theoretical analysis and the survey results provided a significant starting point, but they also indicated that a deeper understanding requires direct observation of students' personalized algorithmic spaces and a comparison of the patterns of recommended content and their thematic diversity.

Such research would allow a more precise understanding of the relationship between interests, algorithmic recommendations and information habits, without presupposing a cause-and-effect connection in advance. For education to help students look beyond the glass, it is first necessary to understand the world they see through it.

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APPENDIX 1:
RESULTS OF THE SURVEY

Percentages are calculated from the valid responses to each question and are rounded to two decimal places. For multiple-choice questions, the total may exceed 100%.

After question 5, the survey ends for respondents who do not watch short-form video content. They account for 4.23% of all respondents and are not included in the calculation base for the subsequent questions.

The additional questions on the source of information are presented for the respondents who answered "Yes" for the corresponding topic. Deviations from 100% in single-choice questions may result from rounding.

1. Gender

Response	Percentage
Male	25.35%
Female	74.65%

2. How old are you?

Response	Percentage
11	14.08%
12	4.23%
13	11.27%
14	4.23%
15	9.86%
16	5.63%
17	7.04%
18 or older	43.66%

3. Which of the following platforms do you use? (Multiple answers possible.)

Response	Percentage
TikTok	83.10%
Instagram	87.32%
YouTube	78.87%
Snapchat	57.75%
Facebook	40.85%
Other	22.54%
I do not use social media	0.00%

4. Approximately how much time per day do you spend watching short-form video content (TikTok, Instagram Reels, YouTube Shorts)?

Response	Percentage
I do not watch at all	2.82%
Less than 30 minutes	4.23%
From 30 minutes to 1 hour	9.86%
From 1 to 2 hours	22.54%
From 2 to 3 hours	25.35%
More than 3 hours	35.21%

5. On which platform do you most often watch short-form video content?

Response	Percentage
TikTok	67.61%
Instagram Reels	16.90%
YouTube Shorts	8.45%
Other	2.82%
I do not watch short-form video content	4.23%

6. What kind of content appears to you most often? (Multiple answers possible.)

Response	Percentage
Humor, memes and entertainment content	73.53%
Influencers and celebrities	63.24%
Music	77.94%
Films and series	48.53%
Gaming	25.00%
Sport	26.47%
Fashion, beauty and lifestyle	57.35%
Education and learning	30.88%
Science and technology	19.12%
Books, art and culture	17.65%
Current events	30.88%
Social topics	14.71%
Politics	16.18%
Other	11.76%

7. List 2–3 specific topics, events or pieces of information that have appeared to you on social media recently.

Responses written in Latin script were transliterated into Cyrillic and obvious language errors were corrected. Responses that were identical after editing were merged.

Edited response	Share
Victoria's Secret fashion show.	4.41%
Sporting events.	2.94%
Cars, politics and other things.	1.47%
News about famous singers and their concerts, a current news story, new products.	1.47%
A viral TikTok trend, a new song, a video by an influencer.	1.47%
Lately I have been getting short clips from films or series, tragic accidents around the world, singers' concerts, new technologies and the like.	1.47%
Lately on social media I have been getting football videos, new songs and various TikTok trends. I also see posts related to school, studying and funny situations with friends. I find the videos related to the everyday life of young people the most interesting.	1.47%
Lately, posts about concerts by well-known bands have often been appearing to me on social media.	1.47%
Lately, information about concerts by singers and bands has often been appearing to me. Some of them interest me and I want to go. I also get clips from films and series, film suggestions, music, songs and more classic videos.	1.47%
Vučić and I do not know.	1.47%
GTA 6, a Minecraft video, a football match.	1.47%
Demonstrations in France, IDJ Show, GRWM.	1.47%
Jelena Karleuša with her new boyfriend, the Victoria's Secret fashion show.	1.47%
Aca Lukas concert.	1.47%
Billie Eilish concert.	1.47%
Zdravko Čolić concert, the new Tesla car that can fly.	1.47%
A singer's concert, a new product.	1.47%
A concert by a female singer, an advertisement for Juicy Bomb.	1.47%
Tamara Todevska concert.	1.47%
Concerts by my favorite singers and popular dances.	1.47%
Singers' concerts, interesting facts and new developments. Everything is in English.	1.47%
Singers' concerts.	1.47%
Concerts by international musicians, the premiere of a new series, a political event, namely the protests in Milan and Paris.	1.47%
Jala and Buba concerts, how makeup artists deal with a problem if they make a mistake while doing makeup, tips and tricks for school, for example how to solve a math problem, and the like.	1.47%
Concerts, events and music.	1.47%

Edited response	Share
Concerts, skincare and beauty, recipes.	1.47%
Concerts, trends and events.	1.47%
Concerts, films, series and humorous content.	1.47%
Concerts.	1.47%
The "Zlatno Slavejče" concert, the new Toyota SUV model, the new Jordan sneaker model.	1.47%
The A$AP Rocky concert, the series *The Mentalist* and scouts.	1.47%
The Kaliopi concert, Aleksandar Dinev's croissants and the protests in France.	1.47%
Short clips from a film, the new Tesla.	1.47%
A short clip from a series I am watching.	1.47%
The Victoria's Secret fashion show and the protests in France.	1.47%
Music and makeup tutorials.	1.47%
Events across Macedonia and the world, art, meal recipes, films, series, music, educational videos, educational or funny podcasts.	1.47%
The storm in Turkey, short clips from a series, DM products.	1.47%
A new product, a sporting event, an event in Roblox.	1.47%
A new product.	1.47%
A new TikTok trend, YouTubers, influencers.	1.47%
A new book, space missions, a school project.	1.47%
New cosmetic products, a trend for high boots, the premiere of the series *Outer Banks* and the like.	1.47%
New products, trends.	1.47%
Newly released songs, interesting films.	1.47%
Politics.	1.47%
The premiere of a film or series, political events and protests, for example in France, band concerts.	1.47%
A film premiere, new makeup and facial care products, travel.	1.47%
A film premiere, a social event, a trend.	1.47%
A film premiere.	1.47%
Premieres for GTA 6, NBA news, an advertisement for the film *Avengers: Doomsday*.	1.47%
Protests across Europe.	1.47%
The protests in Paris, the Victoria's Secret fashion show and Pink Floyd concerts.	1.47%
The protests in France, content from influencers.	1.47%
Ritko, Baka Prase, BMW cars.	1.47%
Roblox, Minecraft.	1.47%
Rock music glitch.	1.47%

Edited response	Share
The situation in Milan and Paris, the violence against the child in Vlae.	1.47%
Sport and music.	1.47%
Sport, football and music.	1.47%
Theater performances, concerts, crime news.	1.47%
A trend.	1.47%
Trends, events and current news.	1.47%
A film.	1.47%
Films, funny videos.	1.47%

Thematic map by age. Each value shows the percentage of valid responses to question 7 in the corresponding age group that mention the topic. A single response may belong to several topics, but it is counted at most once in each topic.

Topic	11	12	13	14	15	16	17	18+
Music and concerts	50.00%	33.33%	87.50%	33.33%	42.86%	0.00%	60.00%	53.57%
Films and series	0.00%	33.33%	0.00%	33.33%	28.57%	0.00%	40.00%	42.86%
Fashion and beauty	0.00%	33.33%	37.50%	0.00%	0.00%	50.00%	60.00%	14.29%
Video games	20.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%
Sport	20.00%	33.33%	25.00%	33.33%	0.00%	0.00%	0.00%	7.14%
Politics and social topics	20.00%	0.00%	0.00%	0.00%	14.29%	50.00%	20.00%	25.00%
News and general events	10.00%	0.00%	0.00%	0.00%	42.86%	25.00%	0.00%	17.86%
Influencers and celebrities	20.00%	0.00%	12.50%	33.33%	0.00%	0.00%	20.00%	3.57%
Trends	10.00%	0.00%	25.00%	33.33%	57.14%	25.00%	20.00%	0.00%
Products and advertisements	30.00%	33.33%	12.50%	0.00%	42.86%	0.00%	20.00%	10.71%
Cars and technology	0.00%	0.00%	12.50%	33.33%	0.00%	0.00%	0.00%	14.29%
Education and science	20.00%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	7.14%
Books and art	10.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	7.14%
Food and recipes	0.00%	0.00%	12.50%	0.00%	0.00%	0.00%	0.00%	3.57%
Travel	0.00%	33.33%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Everyday life and humor	0.00%	0.00%	0.00%	33.33%	0.00%	0.00%	0.00%	10.71%
Scouting	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.57%

8. Have you heard that the Ministry of Education and Science recently adopted decisions to withdraw a large number of textbooks from use in primary and secondary education?

Response	Percentage
Yes	41.18%
No	45.59%
Not sure	13.24%

8.1. Source of the first information about the withdrawal of textbooks

Response	Percentage
From social media	32.14%
From television	21.43%
From a news portal / website	10.71%
From parents / other family members	14.29%
At school / from a teacher	21.43%

9. Have you heard that the Macedonian influencer Aleksandar Dinev has his own brand of snack and sweet products – Dinev Snacks?

Response	Percentage
Yes	83.82%
No	13.24%
Not sure	2.94%

9.1. Source of the first information about Dinev Snacks

Response	Percentage
From social media	89.47%
From television	0.00%
From a news portal / website	0.00%
From parents / other family members	1.75%
At school / from a teacher	3.51%
From friends / classmates	5.26%

10. Have you heard about the warnings about social media scams related to cryptocurrencies and online trading that promise quick and easy earnings?

Percentages of the valid responses to the question.

Response	Percentage
Yes	73.53%
No	16.18%
Not sure	10.29%

10.1. Source of the first information about the crypto scams

Response	Percentage
From social media	38.00%
From television	4.00%
From a news portal / website	8.00%
From parents / other family members	20.00%
At school / from a teacher	10.00%
From friends / classmates	6.00%
I searched the internet myself	6.00%
From ChatGPT or another AI tool	2.00%
Other	6.00%

11. Have you heard about the protests by secondary school students in France related to conditions in schools, such as teacher shortages, overcrowded classes and insufficient resources?

Response	Percentage
Yes	70.59%
No	27.94%
Not sure	1.47%

11.1. Source of the first information about the protests in France

Response	Percentage
From social media	62.50%
From television	20.83%
At school / from a teacher	8.33%
From friends / classmates	6.25%
Other	2.08%

12. Have you heard that Grand Theft Auto VI (GTA VI) is due to be released on 19 November 2026?

Response	Percentage
Yes	51.47%
No	42.65%
Not sure	5.88%

12.1. Source of the first information about GTA 6

Response	Percentage
From social media	65.71%
From a news portal / website	5.71%
From parents / other family members	5.71%
From friends / classmates	20.00%
Other	2.86%

13. Have you heard that NASA is developing a 5G communication system that is to be used on the surface of the Moon in the future?

Response	Percentage
Yes	41.18%
No	42.65%
Not sure	16.18%

13.1. Source of the first information about NASA and 5G on the Moon

Response	Percentage
From social media	67.86%
From a news portal / website	14.29%
From parents / other family members	3.57%
At school / from a teacher	3.57%
From friends / classmates	7.14%
I searched the internet myself	3.57%

14–19. Attention and Following Longer Content

How much do you agree with the following statements? Scale from 1 to 5, where 1 means "I do not agree at all" and 5 means "I completely agree".

Statement	1	2	3	4	5
If a video or text does not catch my attention right at the beginning, I usually stop following it.	2.94%	13.24%	22.06%	10.29%	51.47%
When I watch a longer video, I often skip parts to get more quickly to the information that interests me.	8.82%	10.29%	23.53%	19.12%	38.24%
I understand information more easily when it is presented briefly, visually and divided into several parts.	4.41%	4.41%	29.41%	17.65%	44.12%
If the topic really interests me, I can carefully follow even a longer video or text.	1.47%	1.47%	16.18%	14.71%	66.18%
When the content is longer or more complex, I sometimes draw a conclusion only from the shortest or most striking parts.	5.88%	13.24%	27.94%	17.65%	35.29%
I am prepared to keep reading or watching something even when it is not immediately clear to me at the beginning why the information is important.	7.35%	14.71%	26.47%	17.65%	33.82%

20. How many waste-sorting bins were put in place during the first week?

Text: In one school, the students noticed that a large amount of plastic packaging was thrown away every day during the long break. The student parliament proposed setting up separate bins for sorting waste and organizing a short campaign on how to use them correctly. During the first week, six bins were put in place at different locations in the school. After one month, the amount of plastic waste ending up in the ordinary bins had decreased by about a third. However, the students noticed that simply putting bins in place was not enough, because some of the waste was still being thrown in the wrong place. They therefore prepared short videos and posters reminding their schoolmates how to sort waste correctly. After a few weeks, the teachers noticed that more students had started using the sorting bins on their own.

Response	Percentage
4	4.41%
6	91.18%
8	1.47%
10	2.94%

21. What does the fact that some of the waste still ended up in the wrong place even after the bins had been put in place show?

Response	Percentage
That the bins were unnecessary.	2.94%
That simply putting the bins in place was not enough.	76.47%
That the students did not want to take part in the activity.	17.65%
That the amount of waste had increased.	2.94%

22. Which conclusion follows best from the text as a whole?

Response	Percentage
Problems at school are solved only with new equipment.	8.82%
Information and active involvement can help to change behavior.	83.82%
Students should not organize activities on their own.	4.41%
Plastic waste cannot be significantly reduced.	2.94%

23–26. Critical Thinking and Algorithms

How much do you agree with the following statements? Scale from 1 to 5, where 1 means "I do not agree at all" and 5 means "I completely agree".

Statement	1	2	3	4	5
The fact that some content has many views and shares does not mean that it is important.	1.47%	7.35%	23.53%	13.24%	54.41%
If the same piece of information appears to me several times on social media, that does not mean that it is automatically accurate.	5.88%	10.29%	29.41%	13.24%	41.18%
I know that what I watch, like, search for or skip can influence the content that the platform later shows me.	1.47%	10.29%	13.24%	11.76%	63.24%
The fact that an important topic rarely or never appears in my feed does not mean that the topic is not significant.	4.41%	10.29%	20.59%	5.88%	58.82%

27. On TikTok, Instagram Reels or YouTube Shorts, you watch a video claiming that there will be no classes in schools tomorrow. The video has many views, but it does not say where the information comes from. What would you most likely do?

Percentages of the valid responses to the question.

Response	Percentage
I would believe it because the video has many views.	4.41%
I would ask a friend whether they had heard anything about it.	19.12%
I would check an official or other credible source.	47.06%
I would share it to ask others whether it is true.	10.29%
I would keep scrolling.	19.12%

28. Lately, almost all the videos that appear to you on a particular topic advocate a similar opinion. Which explanation seems most reasonable to you?

Response	Percentage
Probably almost everyone thinks that way.	10.29%
If it keeps appearing to me, that opinion is probably correct.	5.88%
It is possible that the platform is showing me more content similar to what I have previously watched or interacted with.	70.59%
If other opinions do not appear to me, they probably do not exist.	1.47%
I do not know.	11.76%

About the Author

Aleksandra Spasevska holds a master's degree in Macedonian literature and is a graphic designer who has completed the Brainster academy. Since 2019, she has worked as a teacher of Macedonian language at the "Kuzman Josifoski-Pitu" Primary School in Kičevo. Alongside her teaching, she occasionally works on creative visual projects in the field of graphic design. Her research interests focus on literature, media and digital literacy, critical thinking and contemporary educational practices. She regards media literacy as an important part of contemporary education and continuously incorporates it into her teaching activities.